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Opportunity cost in task prioritization and its influence on resource allocation decisions

Shark Punch Oy - A technology startup case study

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<p>The main objective of this thesis is to examine and evaluate the relationship between opportunity cost, task prioritization and resource allocation. The secondary objective is to determine whether the application of these theories in the practical work setting of Shark Punch Oy can bring improvements in organizational performance. Furthermore, feasible recommendations are drawn from the synthesis of base theories combined with critical discussions on their practical applications and limitations.</p> <p>The research demonstrates that there is an intricate connection and inter-dependency between the theories. Practical application of the theories opens up multiple avenues for potential improvements in organizational performance. These avenues can and should be exploited by the managerial level staff of Shark Punch Oy to facilitate value generation for both the organization and its customers. As a result of greater value generation, Shark Punch Oy is able to solidify their position within the market by achieving a competitive advantage over their competitors.</p> <p>Outcome of the study was that there are numerous improvements that can be made within Shark Punch Oy and its two functional units. The conclusions drawn by the author are directed at opportunity cost between mutually exclusive tasks, the prioritization of tasks based on thresholds and criteria, and resource allocation decision affected by the supportive activities of organizational structures and systems.</p>	
Keywords	Opportunity cost, task prioritization, resource allocation, decision-making

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1 Introduction

1.1 Research Topic

The topic of this research is to study the role of opportunity cost in task prioritization, examining how this affects resource allocation decisions within Shark Punch Oy and then providing recommendations to the decision makers within the start-up on how to improve current methodology and/or processes related to these areas of interest.

The author has been working as a full-time digital marketing intern at Shark Punch nearly 4 months as of May, 2016. During his employment there the author has become aware of inefficiencies surrounding the way decisions are made regarding the allocation of resources, such as manpower and funds, and the prioritization of tasks.

Based on his observations and the unsolicited comments of the decision makers within the organization it has become evident that the current methodology to handle decisions related to resource allocation and task prioritization is lacking. The efficiency and accuracy of said activities has therefore been producing suboptimal results from a business perspective. As a result of poor resource allocation and the lack of a clear narrative, the start-up has been unable to make significant progress in their online marketing and user acquisition efforts, both of which are consuming regular monthly expenditure.

Based on this premise, this study has 4 major objectives:

1. To examine the relationship between task prioritization and opportunity cost
2. To discover how large of an impact does task prioritization have on resource allocation decisions
3. To form the necessary theoretical basis on the key areas depicted in the research question
4. To develop a sufficiently sophisticated synthesis on the topic to be able to provide viable recommendations to the decision makers within Shark Punch and help them make improvements to their existing methods and/or processes

1.2 Research Question

What is the role of opportunity cost in task prioritization and how much influence does this have on the resource allocation decisions within Shark Punch Oy?

1.3 Expected Outcomes

The thesis has the following expected outcomes:

1. A clear theoretical base of the topics related to the research question
2. An examination of the relationship between the different theories presented in the research question
3. A synthesis of the base theories and primary research from which recommendations can be drawn
4. Possibly a theory developed by the author that can be applied within Shark Punch Oy that effectively and systematically supports the decision makers in their daily activities
5. A finalized version of the thesis itself

1.4 Research Methodology

1. A literature review conducted on the three main areas: opportunity cost, task prioritization and resource allocation, tangent research on uncovered areas of interest
2. Review of online sources to fill in the missing information in relation to the main areas of interest, and to add additional relevant information not found in literature
3. Primary research to identify the current processes, methods, beliefs and values of decision-making in Shark Punch Oy from the point of view of the management. To be conducted in the form of a questionnaire to solicit feedback directly from the managerial level employees

1.5 Shark Punch Oy

Shark Punch Oy is a technology start-up operating within the Finnish gaming industry that holds offices both in San Francisco, US and Helsinki, Finland. The start-up was first announced in 2014 after the current founders had sold their previous company to Disney Corporation to start working on their own independent game title. In 2015 the start-up launched both the Alpha and Beta versions of Playfield. Playfield is a digital storefront and a discovery platform for PC games and also serves as the main product of Shark Punch. The product features roughly 3000 games from 1000 game developers and game publishers.

The organization currently consists of 13 employees, which includes the operational level workers as well as the three senior managers: Jiri Kupiainen, CEO and founder; Leo Lännemäki, CTO and co-founder; Harri Manninen, COO, co-founder, and mentor of the author as well as the head of the business unit.

Shark Punch Oy is a typical technology start-up consisting of a business unit and a development unit. The business unit is responsible for the marketing, sales, promotional and other revenue generating activities. The development unit is responsible for product management, product maintenance and other tasks the author is not intimately familiar with.

The hierarchy of the organization consists of two layers: the operational level workers and the management. Both functional units have their respective senior managers, who work alongside the CEO to manage the strategy, daily ongoing activities, and other key areas of running the organization.

From a structural point of view, Shark Punch Oy falls under a functional structure framework, where responsibility is divided according to an organization's primary specialist roles such as production, research and sales. The defining aspects of a functional structure will be further explained under the theory review section of the thesis.

2 Theoretical base

2.1 Opportunity cost

According to Begg and Ward (2013) microeconomics is a study of how individuals make economic decisions within an economy. In microeconomics, the theory of opportunity cost deals with the value of choices when the resources are limited and decisions have to be made between mutually exclusive alternatives. In other words, opportunity costs are the benefits forgone from the next best alternative (Begg and Ward, 2013, p.8). It can also be understood so, that the opportunity cost of using a resource is the amount it would have earned in its best alternative use (Dawson, 2006, p.89).

An example of opportunity cost would be as follows:

- if we assume doing task A can be estimated at 0,50€ value and task B at 1€, choosing to do task B rather than task A will result in opportunity cost of 0,50€ while choosing to do task A over task B will result in opportunity cost of 1€. According to this logic, if we are able to reliably and systematically assign values to tasks, we should be able to always maximize our gains by completing tasks with larger opportunity cost first, therefore forgoing the benefits of the tasks with lesser opportunity costs (Begg and Ward, 2013, p.8)

By looking at this example we can make the assumption that the process of making a choice dependent on its opportunity cost is linear. However, we are operating under the premise that both of the alternatives have a fixed value, which is also in the easily recognizable form of monetary currency. The challenge of arriving at such a straight-cut decision lies in our ability, or inability, to accurately and systematically assign clear values to the alternatives.

Additionally, because these decisions are made by human beings, there is always room for error in the decision-making process in the form of biased reasoning. Although an alternative has a higher opportunity cost, and according to the theory should not be forgone, there will exist the possibility that the subject making the decision has a different value system in place which might influence their bias. Lastly, there is the

question of time preference and how short term and long term benefits do not necessarily hold equal value to the decision maker (Boakes, 2009, p.5). Due to the scope of the thesis time preference will not be considered as a crucial factor in determining benefit of activities and tasks related to the thesis question.

By better understanding the limitations and practical applications of opportunity cost, we should be able to gain insight into how decision makers are able to maximize their gains by systematically and reliably choosing the alternatives that reap the most benefits (Begg and Ward, 2013, p.8). We should also try to determine what the impact of opportunity cost on task prioritization is, or at the bare minimum gain a more sophisticated understanding of it.

2.2 Resource allocation

2.2.1 Strategic capabilities and the Resource-Based View

Gerry, et al. (2014) say that in resource-based view the competitive advantage and superior performance of an organization are explained by the distinctiveness of its capabilities. Additionally, strategic capabilities are the capabilities of an organization that contribute to its long-term survival or competitive advantage (Gerry, et al., 2014, p. 70). It should also be noted that in order to provide long term success, strategic capabilities should not remain static within the organization. These types of capabilities are also called dynamic capabilities, and they are characterized by the organizations ability to actively renew and recreate them cope with the needs of a changing environment (Gerry, et al., 2014, p.71). Based on these points we can arrive at the suggestion that if an organization lacks distinctive capabilities, or that these capabilities are stagnant, they then become subject to the whims of their competitors.

The reason behind this is the dual-effect of both underperforming and therefore losing the competitive advantage within the market. Unless an organization is able to sustain the distinctiveness of their capabilities, maintaining an advantage can, and will become increasingly difficult over time. Furthermore, these distinctive capabilities, which are often also referred to as strategic capabilities, are inevitably linked to the organization's managerial leadership's abilities as well as the skills of its employees (Boxall and Purcell, 2011, p. 120). From this we can conclude that the employees who make up an

organization directly affect the organization's performance either in a positive or negative way.

The strategic capability of an organization is split into two components: resources and competencies:

- resources are the assets an organization possesses or is able to call upon,
- while competences are the ways these assets are utilized or deployed in an effective and efficient manner. It is common that all strategic capabilities have a hint of both resources and competences in them (Gerry, et al., 2014, p. 70-71)

Strategic capability		
Resources: what we have, e.g.		Competences: what we do well, e.g.
Machines, buildings, raw materials, products, patents, data bases, computer systems	Physical	Ways of achieving utilisation of plant, efficiency, productivity, flexibility, marketing
Balance sheet, cash flow, suppliers of funds	Financial	Ability to raise funds and manage cash flows, debtors, creditors etc.
Managers, employees, partners, suppliers, customers	Human	How people gain and use experience, skills, knowledge, build relationships, motivate others and innovate
Long-term survival and competitive advantage		

Figure 1 - Components of strategic capabilities (StratMgt Advisor, 2013)

While having these types of assets is crucial, the way an organization utilizes those assets matters at least as much. Both the efficiency and effectiveness of said assets are directly dependent on the systems and processes, among other things, according to which they are managed.

Another theory that deals with the organization's suitability in supporting capabilities that provide competitive advantage is VRIO. VRIO stands for Value, Rarity, Imitability and Organizational Support. These four criteria can be used to assess the effectiveness of organizational capability in achieving competitive advantage and as a result, an upper hand in the market (Gerry, et al., 2014, p.76).

Out of the four criteria the most relevant one to our topic is organizational support. Reason behind this is that without appropriate organizational processes and systems capabilities will be severely underperforming in their respective areas. Within the organizational structure both formal and informal management control systems must exist to support and facilitate exploitation of these capabilities (Gerry, et al., 2014, p.80).

Within organizations a problem often arises of understanding where exactly the competitive advantages are located. It is the responsibility of the managerial level employees to correctly identify and understand the strategic capabilities of the organization. Should the managerial level handle the identification poorly, there is a high probability that they therefore wrongly assess the value of resources they possess and as a result allocated these resources inefficiently (Gerry, et al., 2014, p.94-95).

In addition to these responsibilities, the managers must also determine if the current ongoing activities are crucial for the delivery of value to customers. Should the activities fall under the category of being lackluster, they should be eliminated completely, outsourced or be pushed through a process of cost cutting. Furthermore, when the managers fail to fully understand organizational capabilities and are unable to measure the value created for the customer base, they should be closely monitoring outputs instead. These outputs are the direct result of processes which have gone through the process of utilization and facilitation (Gerry, et al., 2014, p.95-97).

Despite the widespread popularity and relative success of the theory, the resource-based view has also been the target of criticisms. Some academics have claimed that the view suffers from the risk of tautology, the lack of specificity and the lack of dynamics (Gerry, et al., 2014, p.96). As with any theory it is important to understand the limitations instead of blindly applying it and hoping for the best. In this study the resource-based view will be applied cautiously due to the recorded criticisms it has received.

2.2.2 Resources in project management

Without a clear-cut connection between project management and our topic, it is the assessment of the author that the study of this area can provide better context to understanding the methodology behind assigning values to activities. Each value

corresponds to a certain amount of assets that should be assigned to the activity itself. Despite these values being estimated in the context of a project, they should be directly transferrable to task evaluations to help us understand task prioritization more intimately. For the aforementioned reasons this area of interest should not be omitted from the study.

When estimating the amount of resources allocated to activities within projects, we must first have a clear understanding of the quantity and type of the resources being allocated. The different types of resources we are referring to are people, equipment and in some cases physical materials. In addition to these factors, the nature of the project, and the organization as a whole, has an impact on the evaluation of these resources. To assist with the evaluation we can rely on such tools as expert judgment, analyses of alternatives, estimating data and project management software (Schwalbe, 2014, p.236).

There are a number of key questions that assist us in estimating activity resources, some examples of these are:

1. How difficult will specific activities be on this project?
2. Is there anything unique in the plan that will affect resources?
3. What is the organization's history in doing similar activities, or have similar tasks been done before?
4. Does the organization have the necessary people, equipment and materials available to perform the work?
5. Does the organization need to acquire more resources, or perhaps outsource some of the work?
6. Will outsourcing increase or decrease the amount of resources needed and when they will be available? (Schwalbe, 2014, p.236)

Based on this type of evaluation we should be able to generate a theory on assigning more accurate values to organizational tasks, which are similar to project activities in many ways. In order to develop a practical and feasible approach relevant to the main question of this study, we will return to this particular area of interest in the theory synthesis portion of the thesis.

2.3 Organizational design

We are now moving on to organizational design in connection to the organizational structure which we touched upon in the introductory chapter. According to Gerry et al., successful strategic implementation is dependent on organizational design, which comprises of two key elements:

- structures which give people formally defined roles, responsibilities and lines of reporting,
- and systems that support and control people as they carry out structurally defined roles and responsibilities (Gerry, et al., 2014, p.433)

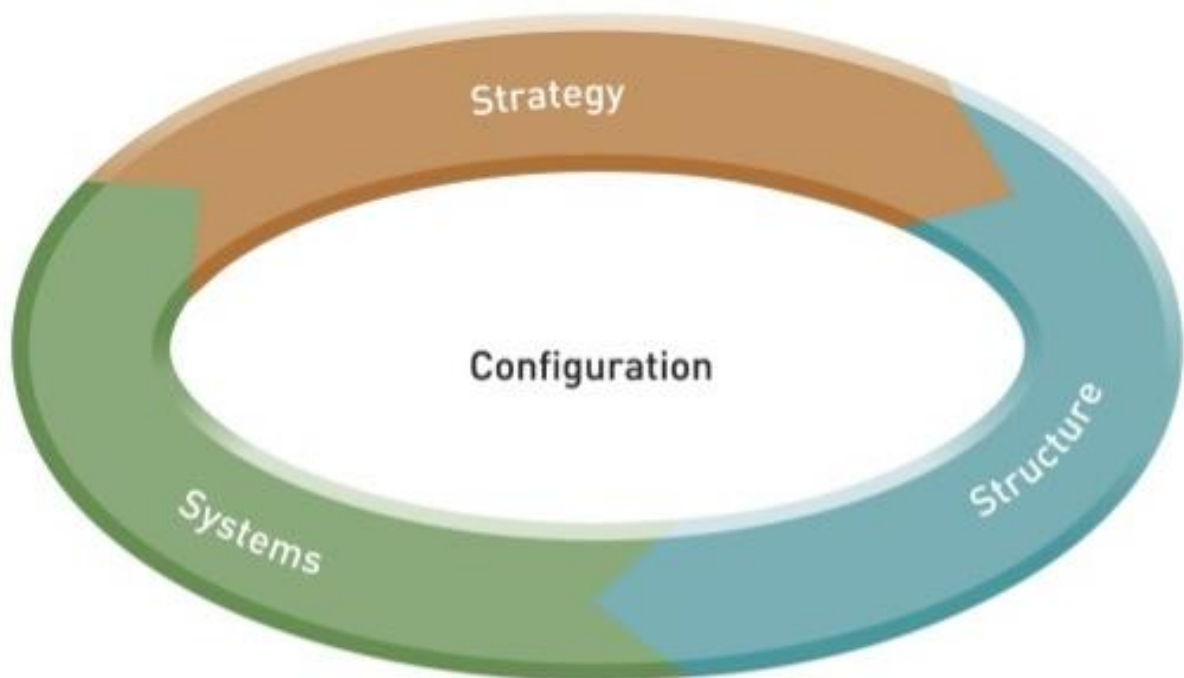


Figure 2 - Organizational configurations (StratMgt Advisor, 2013)

2.3.1 Structures

As mentioned previously, the functional structure of an organization divides responsibilities according to the primary specialist roles such as production, research and sales. This type of a structure is particularly relevant to small or start-up organizations, or in some cases large organizations that have retained narrow, rather than diverse, product ranges. The benefit of having a functional structure is that it

provides a clear definition of roles and tasks, which in return can increase structural clarity and therefore divide more accountability between individuals (Gerry, et al., 2014, p.434-435)

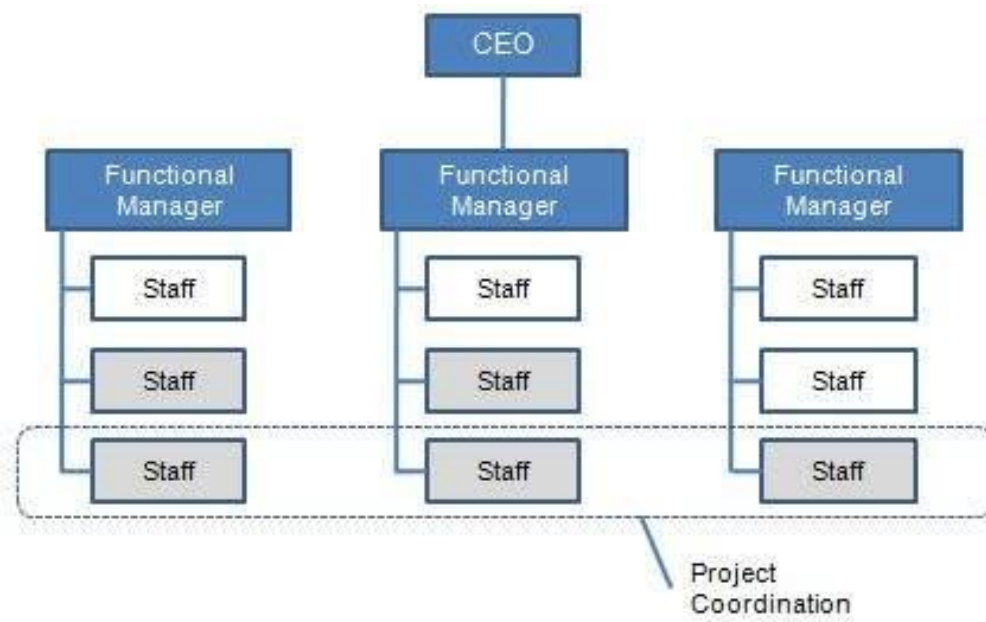


Figure 3 - Functional structure (Tutorialspoint, 2016)

Although the functional structure provides managers quick access to the daily operations of the organization, it also runs the risk of overburdening them with routine activities which have a tendency to fill up schedules. This can result in lack of clear narrative from the overall strategic point of view and reduce the response time of the managers in coordinating functions between separate divisions. In the fast-paced and rapidly changing environment of a start-up this can become particularly troublesome issue and one that is hard to deal with (Gerry, et al., 2014, p.436).

2.3.2 Systems

Organizational structure discussed in the previous paragraph is one of the key ingredients for success, but structures can only provide benefits if they are granted the necessary support by formal and informal systems, which are also known as the “muscles” of the organization. In the case of smaller organizations, such as start-ups, we are able to rely on the direct supervision of a single entrepreneur or manager who monitors the activities in person. However, in larger and more complex organizations there is need for far more elaborate and complex systems and structures, which are

able to provide a sufficient enough foundation to remain effective over longer periods of time (Gerry, et al., 2014, p.435).

According to Gerry et al. (2014) systems can be subdivided in two ways. First, systems tend to emphasize either control over inputs or outputs:

- Input control systems concern themselves with resources consumed in strategy especially financial resources and human commitment
- Output control systems focus on ensuring satisfactory results, e.g. the meeting of targets (milestones) or achieving market competitiveness

Second subdivision is between direct and indirect controls:

- Direct controls involve close supervision or monitoring
- Indirect controls are hands-off, setting up the conditions whereby desired behaviors are achieved semi-automatically (Gerry, et al., 2014, p.445).

	Input	Output
Direct	Direct supervision; Planning systems	Performance targeting
Indirect	Cultural systems	Internal markets

Figure 4 - Types of control systems (StratMgt Advisor, 2013)

It is common that organizations use an even blend between the four control systems in order to cope with strategic challenges they are presented with. The balance between these control systems is reliant on the types of challenges posed by the direction of organizational strategy. In some cases, one control system can become dominant and take the lead because of the nature of the challenges the organization is tackling (Gerry, et al., 2014, p.445).

2.4 Task prioritization

2.4.1 Gantt charts

Gantt charts are commonly used tools for displaying task schedule information. They are able to provide a standardized format for displaying this type of information by listing activities and deadlines in calendar format (Schwalbe, 2014, p.238-241). The Gantt charts were first developed by the famous Henry Gantt, who created this method of monitoring tasks for the factory setting back in 1917 (Schwalbe, 2014, p.26). Back then, the charts were written by hand and visible on the factory floors for all operational level workers. They provided the workers with a handy way of following their own progress throughout the day. These days the Gantt charts have evolved into digital format; instead of using a blackboard and chalk organizations use software that assists them in monitoring tasks.

Although the method of monitoring tasks is almost a century old, a lot of companies have become reliant on the efficiency and accuracy it provides. The process of monitoring tasks is particularly relevant to smaller organizations, such as start-ups, where the environment can be hectic and extremely fast paced. With a rapidly changing portfolio of tasks, employees can quickly get lost in the activities and become overwhelmed. In order to cope with this start-ups are prone to using software, such as Trello, which serves as the modern day digital Gantt chart. We will be taking a closer look at Trello software in the later chapters of this thesis to gain a better understanding of the role it plays in the daily activities of a technology start-up.

2.4.2 Theory of Constraints

According to the Theory of Constraints Institute (2016), TOC is a set of management tools developed by Dr. Eliyahu Goldratt as introduced in the landmark book "The Goal." It helps managers decide:

- What to change?
- What to change it to?
- How to cause the change?"

To further elaborate on the theory, it is a methodology for identifying the most important limiting factor (i.e. constraint) that stands in the way of achieving a goal and then systematically improving that constraint until it is no longer the limiting factor. In manufacturing, the constraint is often referred to as a bottleneck (Lean Production, 2016).

Constraints can be considered anything that stands in the way of the organization from making progress towards its goals. However, one of the properties of a constraint is that it can take many forms in addition to equipment related constraints. There are differing opinions on how to best categorize constraints, a common approach can be seen here (Lean Production, 2016):

Constraint	Description
Physical	Typically equipment, but can also be other tangible items, such as material shortages, lack of people, or lack of space.
Policy	Required or recommended ways of working. May be informal (e.g. described to new employees as “how things are done here”). Examples include company procedures (e.g. how lot sizes are calculated, bonus plans, overtime policy), union contracts (e.g. a contract that prohibits cross-training), or government regulations (e.g. mandated breaks).
Paradigm	Deeply engrained beliefs or habits. For example, the belief that “we must always keep our equipment running to lower the manufacturing cost per piece”. A close relative of the policy constraint.
Market	Occurs when production capacity exceeds sales (the external marketplace is constraining throughput). If there is an effective ongoing application of the Theory of Constraints, eventually the constraint is likely to move to the marketplace.

Figure 5 - Constraint categorization (Lean Production, 2016)

In practice, TOC claims that by identifying these constraints and managing them appropriately, organizations are able to improve their overall performance significantly throughout the entire organization. The theory was originally developed for the industrial setting, but these types of constraints can also be identified other within organizations operating in vastly different types of industries (Theory of Constraints Institute, 2016).

To identify and manage these restrictions, organizations are able to follow the Five Focusing Steps developed by Dr. Goldratt, these steps are:

1. Identify – identify the current constraint (the single part of the process that limits the rate at which the goal is achieved)
2. Exploit – make quick improvements to the throughput of the constraint using existing resources (i.e. make the most of what you have)

3. Subordinate – review all other activities in the process to ensure that they are aligned with and truly support the needs of the constraint
4. Elevate - if the constraint still exists (i.e. it has not moved), consider what further actions can be taken to eliminate it from being the constraint. Normally, actions are continued at this step until the constraint has been “broken” (until it has moved somewhere else). In some cases, capital investment may be required
5. Repeat - The Five Focusing Steps are a continuous improvement cycle. Therefore, once a constraint is resolved the next constraint should immediately be addressed. This step is a reminder to never become complacent – aggressively improve the current constraint and then immediately move on to the next constraint (Lean Production, 2016)

The following figure demonstrates the Five Focusing Steps in a circular pattern:



Figure 6 – Five Focusing Steps (Rowley, 2012)

An independent study conducted at the Victoria University of Wellington, New Zealand, has found that TOC often produces extraordinary performance improvements in organizations, even with partial application of the methodology. Furthermore, the study claims that TOC is not a panacea, a recipe, but is a philosophy that helps lead to

success (Balderstone and Mabin, N.A.). Lastly, by following the logic of constraint elimination we can make the assumption that should an organization identify and solve the most limiting factor, the second most limiting factor automatically assumes the position of the previously solved limiting factor. Through this process of continuous elimination, the previously most limiting factor always becomes the currently most limiting factor by default.

Below is a figure demonstrating these improvements in organizational performance originating from the independent study:

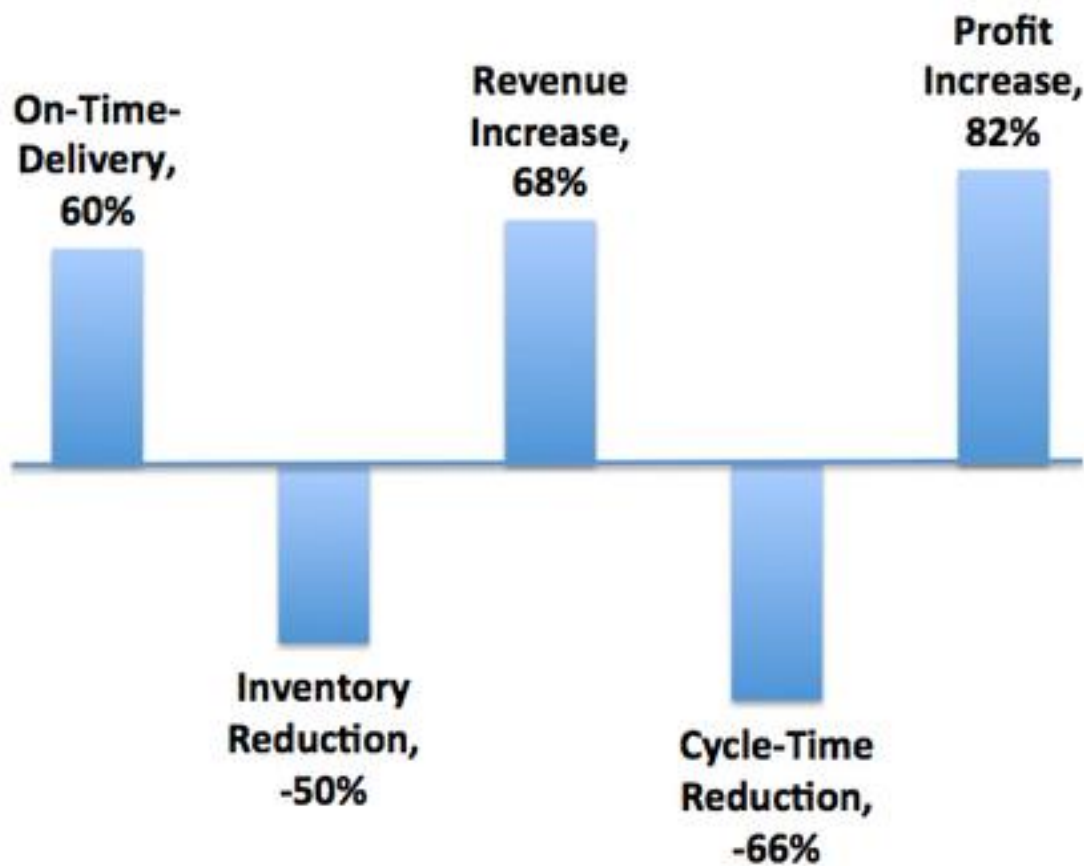


Figure 7 - TOC independent study results (Balderstone, S. J. and Mabin, V. J., N.A)

Although the application of the TOC has an excellent track record, the problem for start-ups is that before the theory can be applied in practice, they should first be able to identify the constraint, as it is stated in the Five Steps. However, in start-ups it is common for the main constraint to “jump around” between various limiting factors, because the business’s operating environment is constantly undergoing changing. As a result, the application of the theory can become significantly harder if the

characteristics of tasks and activities are constantly alternating (Marrisconsulting, 2015).

2.4.3 Pareto Law

The Pareto Law, also known as the 80/20 Principle, states that a minority of causes, inputs or effort usually lead to a majority of the results, outputs or rewards. The pattern underlying the 80/20 Principle was discovered in 1897 by Italian economist Vilfredo Pareto. Pareto uncovered that there is an inbuilt imbalance between causes and results, inputs and outputs, effort and reward (Koch, 1998, p.4-6).

“A good benchmark for this imbalance is provided by the 80/20 relationship: a typical pattern will show that 80 per cent of outputs result from 20 per cent of inputs; that 80 per cent of consequences flow from 20 per cent of causes; or that 80 per cent of results come from 20 per cent of effort” (Koch, 1998, p.4).

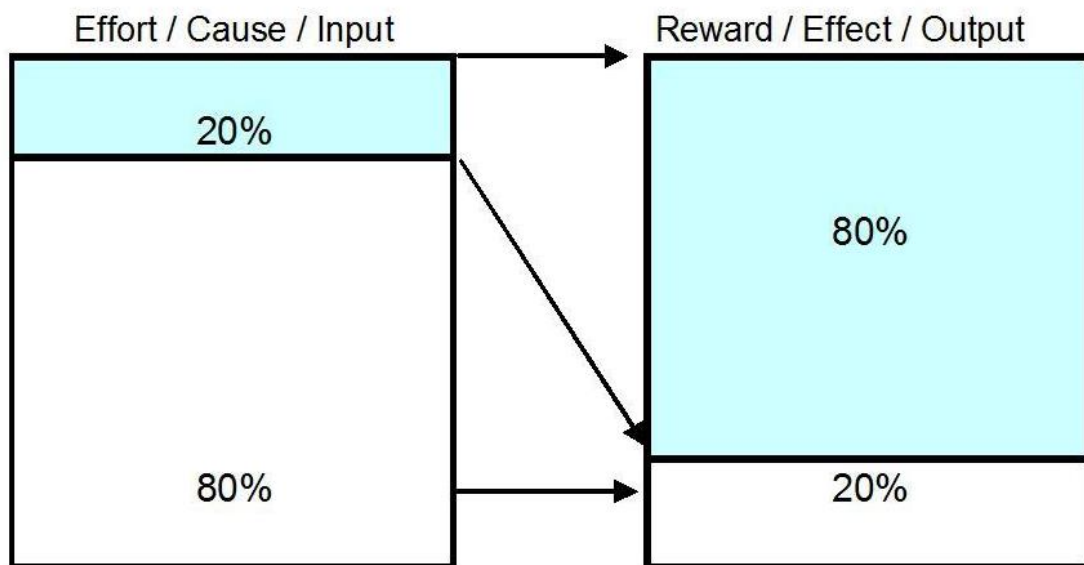


Figure 8 - The 80/20 Principle (Evolvaseo, 2015)

The relevance and validity of this principle have been already confirmed in the business world. As an example, 20 per cent of products usually account for about 80 per cent of dollar sales value; so do 20 per cent of customers. 20 per cent of products or customers usually account for about 80 per cent of an organization's profits. As a result, the 80/20 Principle has helped to shape the modern world (Koch, 1998, p.4-6).

Typically causes, inputs or effort divide into two categories:

- The majority, that have little impact,
- and a small minority, that have a major, dominant impact (Koch, 1998, p.7)

“The importance of the 80/20 Principle lies in the fact that it is counter-intuitive. We tend to expect that all causes will have roughly the same significance, or that all customers are equally valuable. Assume that every bit of business, every product and every dollar of sales revenue is as good as any other. We also tend to rely on the thought that 50 per cent of causes or inputs will account for 50 per cent of results or outputs” (Koch, 1998, p.10).

“Sometimes this does apply, but this “50/50 fallacy” is one of the most inaccurate and harmful, as well as the most deeply rooted, of our mental maps. The 80/20 Principle asserts that when two sets of data, relating to causes and results, can be examined and analyzed, the most likely result is that there will be a pattern of imbalance” (Koch, 1998, p.10).

“Overcoming these assumptions is a challenge; at the heart of this progress is a process of substitution. Resources that have weak effects in any particular use are not used, or are used sparingly. Resources that have powerful effects are used as much as possible. Every resource is ideally used where it has the greatest value. Wherever possible, weak resources are developed so that they can mimic the behavior of the stronger resources” (Koch, 1998, p.11).

“Business and markets have used this process, to great effect, for hundreds of years. The French economist J-B Say coined the word “entrepreneur” around 1800, saying that “the entrepreneur shifts economic resources out of an area of lower productivity into an area of higher productivity and yield”. Business organizations and individuals are generally very poor at shifting resources from where they have weak results to where they have powerful results, or at cutting off low-value resources and buying more high-value resources” (Koch, 1998, p.12).

Koch (1998) states that “there are two ways to use the 80/20 Principle”. Traditionally, the 80/20 Principle has required 80/20 Analysis, a quantitative method to establish the precise relationship between causes/input/effort and results/outputs/rewards. This

method uses the possible existence of the 80/20 relationship as a hypothesis and then gathers the facts so that the true relationship is revealed.

A new and complementary way to use the 80/20 Principle is what Koch (1998) calls “80/20 Thinking”. This requires deep thought about any issue that is important to us, and asks to make a judgment on whether the 80/20 Principle is working in that area. We can then act on the insight. It is important to note that 80/20 Thinking may occasionally be misleading, because it is dangerous to assume that we already know what the 20 per cent is once we identify the relationship. However, Koch (1998) argues that “80/20 Thinking is much less likely to mislead us than is conventional thinking”. It is faster and much more accessible than 80/20 Analysis, but the analysis may be preferred when dealing with critical issues and estimates do not suffice (Koch, 1998, p.29-30)

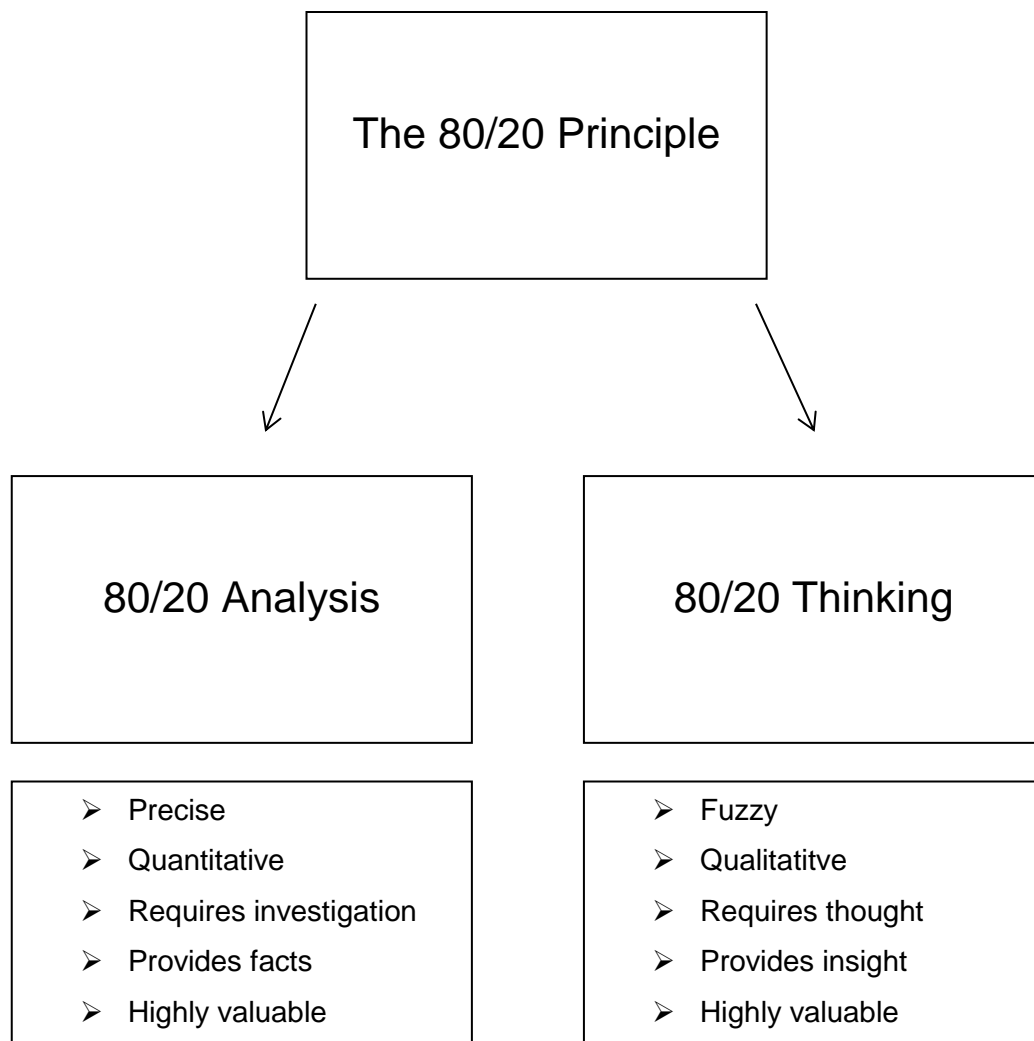


Figure 9 – Two ways to use the 80/20 Principle (Koch, 1998, p.29)

According to Koch (1998), “what is most simple and standardized in business is hugely more productive and cost effective than what is complex. The simplest messages are the most appealing and universal to colleagues, consumers and suppliers. The simplest structures and process flows are at once the most attractive and the lowest cost. Letting the consumer access your business system, as with all forms of self-service, creates choice, economy, speed and spend” (Koch, 1998, p.98).

“Always try to identify the simplest 20 per cent and cultivate it. Keep refining it until it is as simple as you can make it. Avoid celebrating unnecessarily complex and flashy activities. Instead, try to make the simplest 20 per cent as high quality and consistent as imaginable. Whenever something has become complex, simplify it; if that is not possible eliminate it and replace it with something simple” (Koch, 1998, p.98).

The customer-led approach is both right and dangerous. If the obsession with customers leads to recruiting more and more marginal consumers, unit cost will rise and returns fall. Additional products and/or features increase the overhead costs sharply, as a result of the cost of complexity. Similarly, chasing too many customers can escalate marketing and selling costs, and most importantly permanently lower prevailing selling prices, not just for the new customers, but for the old ones too (Koch, 1998, p.111)

According to Koch (1998), there are “three golden rules in 80/20 marketing”:

1. Marketing, and the whole firm, should focus on providing a stunning product and service in 20 per cent of the existing product line – that small part of generating 80 per cent of fully costed profits
2. Marketing, and the whole firm, should devote extraordinary endeavor towards delighting, keeping forever and expanding the sales to the 20 per cent of customers who provide 80 per cent of the firm’s sales and/or profits
3. There is no real conflict between production and marketing. We can only be successful in marketing if what we are marketing is different, and for your target customers, either unobtainable elsewhere, or provided by us in a product/service/price package that is much better value than is obtainable elsewhere (Koch, 1998, p.112)

When applying the 80/20 Principle to projects, there are 4 key objectives that should be met in order to create value to 20 per cent of the most valuable customers:

1. Simplifying the objective – we must first strip the project of any unnecessary and complex tasks that only generate 20 per cent of the results. Instead, prioritize the tasks that generate 80 per cent of the positive results for the project
2. Impose an impossible time scale – when faced with impossible deadlines team members will only focus on the most crucial tasks that are the success factor and necessary for the minimum viable product (MVP)
3. Plan before acting – planning is as important as the execution of a project. Without appropriate planning team members will be forced to make ad hoc decisions on the go, which will result in poorly made decisions regarding the project
4. Design before you implement – the 80/20 rule says that 20 per cent of the problems with any design project cause 80 per cent of the costs or overruns; and that 80 per cent of these critical problems arise in the design phase and are hugely expensive to correct later, requiring massive rework and in some cases retooling (Koch, 1998, p.132-133)

3 Synthesis of base theory

3.1 Opportunity cost

As discussed in the theory review opportunity cost is directly related to choices, and indirectly to the mutual exclusivity and benefit of those choices. The theory states that the cost of consuming a resource is the amount that particular resource would have earned in its best alternative use (Dawson, 2006, p.89). In the context of Shark Punch what this means, is that when employees are presented with a mutually exclusive choice between two tasks one of those tasks most likely will bring larger benefits to the organization. As a result there is greater value creation for the end user of the

product(s). In return, higher value creation improves the overall competitiveness of the organization within the market. Consistently producing more value to your customers over a longer period of time means a sustainable competitive advantage over one's competitors can be achieved.

However, in the practical application of the theory lies a complication: the evaluation process of tasks based on their opportunity cost is not a linear path. In order to successfully determine the opportunity cost of a task in a start-up setting we must first be able to understand the criteria for evaluating the tasks. According to the COO of Shark Punch, Harri Manninen, expected outcomes are the most important factor influencing the evaluation of tasks. Tasks that are expected to create value for customers, and the company, are always completed first and foremost. Based on this we can assume that when tasks which generate added value are not completed, they should carry a significantly higher opportunity cost due to benefits forgone. This is because other tasks completed in their stead do not necessarily contribute towards value creation; as a result they have a negative impact on the overall performance of the organization within the market it is operating in.

Lastly, it is important to divert attention to the most significant limiting factor of the theory in the application within a real world setting. The decision makers, who are responsible for these evaluations, are subject to bias. The existence of such bias, combined with a lack of necessary decision-making processes, can have the nasty side-effect of poor task evaluation. Furthermore, despite not having been discussed in greater detail here, the concept of time preference may also have a noticeable impact on the evaluation process (Boakes, 2009, p.5). In conclusion, the opportunity cost of tasks should be present in the evaluation process despite its shortcomings. With correctly defined criteria, opportunity cost can assist decision makers in better understanding the impact of their decisions prior to making them.

3.2 Task prioritization

As discussed in the opportunity cost portion, the theory does play an important role in task prioritization. In addition to opportunity cost, there are other theories which we should consider applying in the practical setting of a start-up. The Theory of Constraints is one of these theories which we can apply in an attempt to adjust our reasoning when it comes to task prioritization. The theory claims that in every

organization, there are limiting factors which always result in a loss of overall organizational performance (Theory of Constraints Institute, 2016).

The theory also says that identifying these constraints and managing them helps to improve this performance. The extent to which these constraints are managed is directly linked to cumulative increases in performance (Balderstone and Mabin, N.A.). To apply the theory in practice we should follow the Five Focusing Steps discussed in the theory review:

1. identify constraint
2. make improvements using existing resources
3. subordinate other activities to facilitate the constraint
4. elevate alternative methods of managing constraint (capital investment)
5. repeat the steps (do not remain complacent) (Lean Production, 2016)

From the point of view of Shark Punch, we can apply the theory by classifying a constraint as the task, which upon completion would result in the largest boost in organizational performance. As discussed previously, the start-up's performance is connected to value creation for its customers. This means that tasks which possess the potential to generate greatest benefits should be managed, and by managed we are talking about task completion. Once this task is completed, the process should be restarted and a new task assigned as the biggest constraining element for value creation. By following this circular pattern tasks which generate maximum value are always classified as limiting factors and therefore completed in order of prioritization. This, in theory, should result in the maximum amount of added value for both the organization and the customers.

The limitations of the TOC are linked to the practical application of the Five Steps. Previously we discussed that to start the process of constraint elimination we should first identify these constraints. However, the rapidly changing environment of start-ups causes added difficulty in the completion of this step (Marrisconsulting, 2015). Unless we are able to successfully apply the theory and complete the identification of constraints we will be unable to even start the process as a whole.

The third theory we will try to apply to task prioritization within Shark Punch is the Pareto Law. Pareto Law stated that the minority of causes, inputs and efforts lead to

majority of results, outputs and rewards (Koch, 1998, p.4-6). Furthermore, the theory itself is counter-intuitive and subject to the 50/50 fallacy, which is deeply rooted in our mental maps (Koch, 1998, p.10). Based on the premise of this theory we can make the assumption that within Shark Punch 20 per cent of the completed tasks are responsible for 80 per cent of the value created. The application of this thinking, also known as the 80/20 Thinking, is reliant on our ability to reliably implement it in practice (Koch, 1998, p.29-30).

To verify the existence of the Pareto Law within Shark Punch we should first attempt to determine the overall value created by all of the tasks within a certain area of interest. From those tasks we should filter out the ones that have generated the largest amounts of quantifiable benefit. As an example, all tasks linked to the business and revenue generation can be evaluated by analyzing their data and results. After the completion of this evaluation, 20 per cent of the tasks which have generated most value should be filtered out to better understand their characteristics and find commonalities. If the theory is proven valid, the 80/20 Thinking should then be applied to all remaining tasks to make educated guesses based on expected value generation in an attempt to verify its reliability and consistency.

Currently, according to Mr. Manninen, tasks at Shark Punch are prioritized by short term roadmaps and tactical milestones, while long term tasks are prioritized by company strategy. When making individual evaluations of tasks expected outcomes and resource consumption play the biggest roles. According to Schwable (2014) we should also know the type and quantity of resources consumed when evaluating the tasks. Should a resource be limited and/or unavailable, the task connected to the consumption of this resource gets backlogged, which means it loses priority value. In addition to the availability of resources, deadlines and milestones also affect prioritization decisions. Overall, value creation is prioritized above all else and the simplicity of tasks carries no extra weight.

The priority of tasks is commonly re-evaluated on a daily basis subject to the arrival of new critical information. Tasks often change from low-priority to maximum priority and vice versa. This creates added tension for the employees because they are forced to suddenly shift their focus and start to function reactively, as opposed to proactively. A reactive mindset may cause a drop in quality when completing tasks and as a result a subsequent drop in value creation. In order to cope with the rapidly changing

operational environment and constant re-evaluation of tasks, the employees of Shark Punch rely on the previously touched upon digital tool called Trello.

Trello assists workers in their daily activities by providing them with a visual representation of the task pipelines. Below is a snapshot of Shark Punch's Trello board:

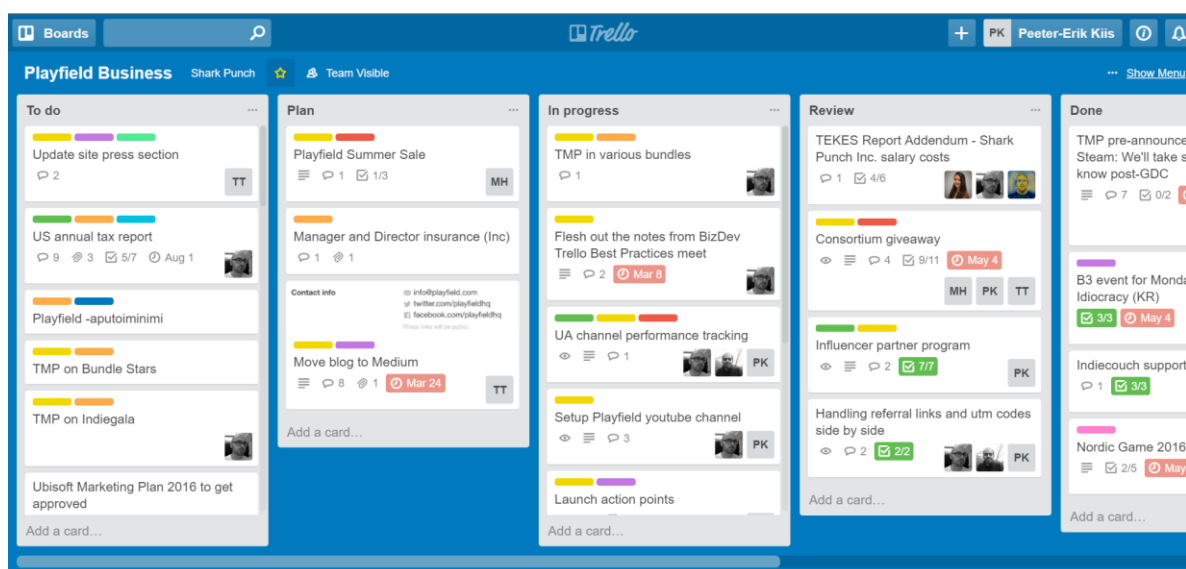


Figure 10 – Shark Punch Trello

In the task pipeline we are able to see how the task completion process flows from left to right, from the To-Do column all the way to the Done column. Tasks are also sorted in order of priority from top to bottom. Some tasks also have a target deadline, which influences task priority despite its position in the pipeline. In addition to priority sorting, tasks get tagged with various colors, such as blue, orange and red. Each of these colors represents a certain classification, as an example yellow represents marketing and red represents the digital storefront.

In addition this this tool, the Shark Punch team holds both daily and weekly meetings to evaluate and if necessary recalculate tactical priorities and milestones. These tactical priorities and milestones are linked to the short term and long term objectives of the organization mentioned previously. The grouping of a task under long- or short term has a direct impact on the overall priority of this task. It is the executive level and board of the organization that determines these tactical priorities and milestones.

3.3 Resource allocation decisions

Finally we move on resource allocation and theories directly linked to this area. First of all, we should remind ourselves that assets the organization possesses or can call upon are defined as resources. Competencies on the other hand were ways those assets get deployed. Strategic capabilities that make up an organization are comprised of both of these (Gerry, et al., 2014, p. 70-71). The efficiency and effectiveness of an organization is directly dependent on systems and processes existent within the organization, because they directly affect the utilization of said assets. According to Koch (1998) weak resources should not be used, or get used sparingly while powerful resources should be used as much as possible. He also says that every resource is optimally used where it has the greatest value and if possible, weak resources should get re-deployed to mimic powerful ones (Koch, 1998, p.11).

In Shark Punch every task is granted sufficient resources to be successfully completed. The assets which are allocated towards task completion are talent (employees), money and time. In the case of tasks with deadlines, the necessary assets always get deployed to facilitate completion. However, the fast-paced and rapidly changing start-up environment complicates task prioritization and resource allocation decisions within Shark Punch. According to Mr. Manninen in the early stages of any start-up the focus should on searching for a scalable business model and meaningful product-market fit. Technology and gaming start-ups in particular are subject to the sudden and constant shifting of landscape, which can bring in new data rapidly. This has an immediate impact on strategy, milestones, task priorities and resource allocation. Koch's (1998) take on this is that organizations and individuals are poor at shifting resources from weak to strong areas, or eliminating weak resources while buying high-value resources. Based on this we can make the assumption that start-ups from a business perspective are at a significant disadvantage when it comes to the utilization of assets. This is based on the premise that larger organizations which operate in a much more stable environment are able to dedicate longer periods of time to adjusting resource shifts.

As the practical case example of Playfield, one of Shark Punch's products, Mr. Manninen said that they made the strategic decision to start selling games directly to customers. This meant that there had to be scalable payment and distribution systems in place. However, the volume of attempted credit card fraud within the e-commerce

landscape especially pertaining to digital goods caught them by surprise. As a result they were suddenly forced to heavily prioritize fraud while deploying resources towards protection and prevention technology. This was something that was not even considered as a tactical milestone before this realization. This provides us with necessary evidence to claim that when the landscape suddenly changes so do resource allocation priorities.

In order to correctly allocate resources managers such as Mr. Manninen must be able to correctly identify and have a clear understanding of strategic capabilities (Gerry, et al., 2014, p.94-95). This means that there is a need to fully comprehend the limitations of assets which are at the disposal of the organization. For Shark Punch this is the management of talent, the monitoring of the cash flows and understanding of the timelines revolving around the utilization of assets.

3.4 Structure, systems and overall management

Within organizations there are two frameworks that support the daily activities. The first one is structures, which define roles, responsibilities and lines of reporting for the talent. The second one is systems that support this talent as they carry out their predefined roles (Gerry, et al., 2014, p.433). The amount of support the employees receive affects the overall performance of the company, because the strategic capabilities are directly linked to the leadership abilities and skills of employees (Boxall and Purcell, 2011, p. 120).

With structure we are referring to the operational framework of the organization, which in the case of Shark Punch is the functional type. We touched upon this topic in the introductory section of the thesis where we characterized this structure as one where responsibility is divided according to an organization's primary specialist roles such as production, research and sales. Another characteristic is that the functional structure provides operational clarity for employees and simultaneously grants managers immediate access to the activities of the employees. The downside of having this level of access is that managers can become overburdened with routine activities, causing them to lose oversight of strategic narrative and deterioration in their ability to issue cross-functional commands. In a start-up environment this can be a particularly difficult problem to deal with (Gerry, et al., 2014, p.436).

Mr. Manninen says that setting up cross-functional teams should be the goal of every start-up or organization alike. However, in practice this process can become complicated quickly. The problem with larger teams is that each additional member added to the core team adds to the complexity of communication, task allocation and day-to-day work routines. He also says that extra effort should be put forward to maintain the relatively compact and small size of existing teams. These types of functional teams can be highly efficient in their working practices, but sometimes they might feel as if they are a separate entity from the parent organization. As a result, they might lose perspective on the common goal and overarching strategy.

Lastly, we arrive at the systems framework, or the “muscles” of the organization. In the theory review we examined how systems are divided in two ways: control over inputs or outputs, and direct and indirect control. Inputs dealt with resources consumed, while outputs were about focusing on satisfactory results. Direct and indirect controls dealt with close or hands-off monitoring of activities. We also noted that there usually exists an even blend between the four systems. Sometimes however, one of the control systems can become dominant as a result of strategic direction and influences linked to this direction (Gerry, et al., 2014, p.445).

Within Shark Punch there is clear preference towards two of these supporting systems. The first is towards outputs, where the main focus is on satisfactory results and completion of milestones. As discussed in the previous sections, satisfactory results and expected outcomes both directly influence task prioritization and resource allocation decisions. Furthermore, overarching strategy has a direct impact on milestone creation and as a result, also influences timelines in an indirect manner. The second preference system is towards in-direct controls, or hands-off controls. This hands-off approach serves as a way to set up necessary conditions whereby desired behaviors are achieved semi-automatically (Gerry, et al., 2014, p.445). Although the employees of Shark Punch have regular supervisory meetings, as mentioned previously, the management trusts that the employees are capable of reliably completing tasks assigned to them in a timely fashion. An indirect method for monitoring this relationship is the previously introduced Trello tool, where tasks are always inputted and monitored, by both the managers and the employees themselves.

4 Conclusion

4.1 Current situation

Currently Shark Punch Oy is in a situation heavily affected by growing pains. The start-up has just recently reached 100,000 unique users on their digital platform and shows signs of 15 per cent weekly growth. The rapidly expanding user base is putting extra stress on the employees to improve on current value added features, as well as the necessity to create new ones. Somewhat poor results from marketing and user retention mean that there is pressure to improve performance on many fronts, particularly because the start-up is also undergoing their venture capital round in an effort to acquire additional funding. The staff's ability to complete tasks which generate immediate value added results has a significant impact on the capital funding round. As such, there is precedent to seek improvements in task prioritization and resource allocation. Furthermore, despite the fast-paced environment the managers should be able to utilize opportunity cost in evaluating expected outcomes of tasks.

Another problem plaguing the daily activities of the business unit is that there is lack of experienced business expertise and subsequent spearheading with regards to strategic direction and delivery of results. Currently the unit is not organized properly, because the necessary structures and systems discussed previously do not exist to the extent they should. This has resulted in numerous misunderstandings in task responsibility, the following of deadlines, and negative influence on the team's working morale. Despite the efforts of the management, there is still room for improvement in many of the areas already discussed in this paper.

In an attempt to fulfil the goal of this thesis, we will now move on to the final portion where the author will provide recommendations to the management of Shark Punch. These recommendations are the culmination of the analysis and have been drawn from the synthesis of the base theory in combination with discussions on their practical application within the start-up. It is important to note that some of the recommendations are based on ideas which were not extensively covered in the paper. Reason for this is that some of the theory was unsuitable for discussions related to opportunity cost, task prioritization and resource allocation. As such, these recommendations can be considered an added value of the thesis.

4.2 Recommendations for Shark Punch management

We will now sum up the recommendations which when applied, should result in improved performance for the organization in multiple areas:

1. To better understand the opportunity cost of different tasks, the management should spend time on analyzing tasks which have already been completed. The most efficient method for doing this is looking at both of the functional units separately. Results from tasks which have achieved greatest measurable benefits and/or added value for both the company and the customers, should be cross-examined to identify commonalities and similar characteristics. These can be then applied to the evaluation of all future tasks in that particular functional area to make better informed decisions on which tasks should be completed between mutually exclusive alternatives due to limited and/or unavailable resources. The continuous application of this method should be self-correcting in the sense that data generated by informed decisions will result in a larger pool of more accurate and reliable data. Subsequently, characteristics and commonalities with largest beneficial impact can be narrowed down and applied in the following rounds of evaluation.
2. Task prioritization should be based on TOC and Pareto Law. Tasks evaluated using the opportunity cost theory can also be evaluated using the 80/20 Law. Although the percentages do not have to match the theory, there should be a clear observable imbalance between the results/outputs of completed tasks. A threshold of added measurable value must be determined and tasks should be categorized either below, or above that threshold. Tasks that fall above the threshold can be categorized as the small minority that has a major impact. In addition to this an attempt should be made to avoid the 50/50 fallacy where all results, no matter their size or impact, carry equal weight as long as the tasks are completed. After the tasks have been filtered according to the 80/20 principle they can be assorted based on the Theory of Constraints. As discussed previously, tasks that are expected to generate most value should be completed first. Completion of tasks filtered by the 80/20 Law and assorted according to the TOC is the most optimal approach for rapid and continuous improvements in organizational performance because of increases in value generation.

3. In their marketing and user acquisition efforts Shark Punch should focus on the 20 per cent customer base generating the most revenue and leading in conversions. The 20 per cent of the top customers must be cultivated and catered to, because in theory are responsible for majority of the results. This can be verified by analyzing user purchase behavior and segregating top performing user groups from the rest. The services and features offered to this powerful minority should be as simplistic as possible, because complexity breeds inefficiency. Additionally, simplistic and standardized services and features are cost effective and help to deliver the clearest message to end users. Should the current services and features be overly complex they must undergo refinement, if it is not possible to refine them they should be eliminated and replaced with simplistic alternatives (Koch, 1998, p.98). Furthermore, managers must also evaluate current ongoing activities and measure their delivery of value for customers, activities that do fulfill this criteria should be modified (outsourced, eliminated, pushed through cost-cutting) (Gerry, et al., 2014, p.95-97).

The three golden rules for this process are:

1. Cater stunning products and service to the 20 per cent
2. Delight, retain and expand sales to the 20 per cent
3. No conflict between production and marketing, market something different, unobtainable or provide more value to customers (Koch, 1998, p.112)

Additionally, Shark Punch should cease efforts in acquiring marginal users i.e. users that convert poorly. This is because marginal users cause additional expenses, which in return may drive up the prices and lower the quality offered to both new and existing users (Koch, 1998, p.112).

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Appendix 1 - Shark Punch Oy management questionnaire

1. How do you determine which tasks take priority and are completed first? (day-to-day and/or long term)

Harri: Day-to-day tasks are prioritized by shorter term roadmaps and tactical milestones. Long term tasks are prioritized by company strategy. Of course, sometimes people react to things which prioritize their work - this is bad, because it puts you in a reactive mode instead of a productive and proactive one.

1. a) Are there any systems and/or processes in place to assist you in this?

Harri: For project management we use Trello to help us visualize the task pipeline. In Trello, higher priority tasks are moved to the top of the columns. We have daily and weekly meetings with the team to evaluate and discuss tactical priorities and milestones. Strategy is formulated on the board and executive level.

2. When evaluating task priority, which criteria are important and influence your evaluation the most? (e.g. resources, deadlines, level of difficulty, expected outcomes)

Harri: Expected outcomes are the most important criteria, meaning that we want to complete tasks and work that provide the highest value for our customers and us as a company. In a startup there is always n+1 things you could be doing, so you should focus on the tasks that provide the most value. Obviously deadlines and milestones affect prioritization, as do resources somewhat (if there's not enough resources, a task may be kept in the backlog). However, Expected Outcomes does not mean that only "easy" and "simple tasks that succeed" should be prioritized in any way.

3. After evaluating tasks and arranging them in order of priority, do you revisit your decision to better understand the implications? If no, why not?

Harri: Yes, tasks get evaluated on a daily basis based on new information. Sometimes a task might be deemed irrelevant, sometimes a lower-prioritized task can be prioritized

and put into high priority because of shifting circumstances. Also, leaders should review their decisions periodically in order to learn from them.

4. How do you allocate resources towards task completion?

Harri: A startup has three main resources: talent (employees), money and time. If a task has a deadline, the only things that should be allocated are HR and money. There needs to be enough resources allocated to each given tasks to facilitate their successful completion.

5. In your opinion, does the fast-paced and rapidly changing startup environment complicate your task prioritization and/or resource allocation decisions? In what way? Can you provide an example?

Harri: Yes, very much so. In a startup the early stages are comprised of looking for a) a scalable business model and b) meaningful product-market fit. Especially in tech and games, the landscape shifts so suddenly that it may bring on new data rapidly which will then affect strategy, milestones, task priorities and resource allocations.

Taking Playfield for example, once we made the strategic decision to start selling games direct we knew we had to have a scalable payments & distribution (delivery) system in place. However, we were surprised at the volume of attempted credit card fraud within the e-commerce landscape especially pertaining to digital goods, so suddenly we needed to heavily prioritize fraud protection and prevention technology (which wasn't even in our original tactical milestones)!

6. In your opinion, what are the pros and cons of the functional structure, where the organization is divided into functional work activities? (managers oversee the work carried out in each functional area)

Harri: Cross-functional teams should be the goal for every startup, but in practice it is not so simple. The problem with bigger teams is that for each team member you add to a team the complexity of a) communication b) task allocation c) day-to-day work increases. So you should attempt to keep teams small. Functional teams can work very

efficiently but sometimes it may feel that they're alone on an island without a bigger understanding of the common goal.